UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/945,445	08/31/2001	Ian Moir	085710.P052	3570

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EXAMINER
STRANGE, AARON N

ART UNIT	PAPER NUMBER
2153	

DATE MAILED: 04/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>30 December 2005</u>.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>53,55-74,77,79-98 and 101-104</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>53,55-74,77,79-98 and 101-104</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1.   Applicant's arguments with respect to claims 53 and 77 have been considered

but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3.   Claim 53-56, 72-74, 77-80,96-98 and 101-104 are rejected under 35 U.S.C.

103(a) as being unpatentable over Hawkinson (US 6,295, 532) in view of Salkewicz (US

6,609,153).

4.   With regard to claim 53, Hawkinson discloses a method of managing network

traffic being routed through a network connection device, the network connection device

having a first set of operations, the network traffic being composed of at least one data

packet, and the method comprising:

(b) receiving a rule program at the network connection device (table set)(Col 13,

Lines 60-65), the rule program including at least:

(i) a first criterion for identifying the traffic flow to which a data packet

belongs (Col 4, Lines 34-36),

(ii) a second criterion for classifying a traffic flow as belonging to one of at

least first (level 1) and second traffic flow (level 2) classes (flow class is

determined) (Col 4, Lines 36-37 and Col 5, Lines 28-30),

(iii) first and second instructions for processing a data packet, the first and

second instructions being associated with the first and second flow

classes respectively (each flow class receives different Qos) (Col 5, Lines

38-39),

(d) receiving a first data packet that belongs to the first traffic flow at the network

connection device (Col 5, Lines 28-30),

(e) using the first criterion to determine that the first data packet belongs to the

first traffic flow (Col 5, Lines 28-30),

(f) using the second criterion to determine the traffic flow class to which the first

traffic flow belongs (Col 5, Lines 28-30, and

(g) processing the first data packet according to the instructions associated with

the flow class to which the first traffic flow belongs (Col 5, Lines 30-41).

Hawkinson fails to specifically disclose instantiating a virtual machine on the

network connection device, having a set of operations that is a sub-set of the first set of

operations, executing the rule program to configure the network connection device, and

managing steps (d) through (g) using the virtual machine.

Salkewicz discloses a similar system for managing network traffic using a

network connection device. Salkewicz teaches instantiating virtual machines on the

netwoek connection device, each virtual machine having a limited instruction set (each

machine may be a router, switch, bridge, etc) (Col 11, Lines 7-9), executing a program

on the virtual machine to configure the network connection device (Col 11, Lines 2-7,

22-30, and 37-42), and managing traffic with the virtual machine (Col 11, Lines 22-26).

Using virtual machines to manage traffic would have been an advantageous addition to

the system disclosed by Hawkinson since they provide greater isolation between

networks (Hawkinson, Col 11, Lines 34-36), can be configured to have nearly any

functionality supported by the network connection device on which they operate

(Hawkinson, Col 11, Lines 7-9), and a single network connection device can perform

traffic management for multiple networks using a plurality of independent virtual

machines.

Therefore, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to use virtual machines on the network connection device

to manage network traffic, since they may be configured for specialized operations and

can operate independently of each other, providing network isolation, even when

running on a single network connection device.

5.   With regard to claim 55, Hawkinson further discloses that step (e) comprises

comparing a first section of the first data packet to the first criterion to determine that the

first data packet belongs to the first traffic flow and step (f) comprises comparing a

second section of the first data packet to the second criterion to determine the traffic

flow class to which the first traffic flow belongs, wherein the second section may include

at least part of the first section (data unit headers are inspected to determine flow/class

of data unit)(Col 4, Lines 34-36).

6.   With regard to claim 56, Hawkinson further discloses receiving supplemental

data pertaining to the first traffic flow, wherein the supplemental data is received outside

of the first traffic flow and step (f) further comprises comparing the supplemental data to

the second criterion to determine the class to which the first traffic flow belongs (desired

QOS is used to generate a flow classification for an unclassified flow) (Col 5, Lines 41-

46).

7.   With regard to claim 72, Hawkinson further discloses that the first and second

instructions pertain to any one of routing, switching, or bridging the network traffic (Col

5, Lines 28-46).

8.   With regard to claim 73, Hawkinson further discloses that the first traffic flow

originated at a network device (packets are received) (Col 4, Line 66 to Col 5, Line 1)

and the method further comprises the step of communicating information regarding the

first data packet to the network device (TCP packets are supported and TCP packets

are acknowledged) (Col 14, Lines 28-49).

9.   With regard to claim 74, Hawkinson further discloses that at least one of the first

and second criteria and the first and second instructions are provided by a network

administrator (Col 14, Lines 29-33).

10.   Claims 77,79,80 and 96-98 are rejected under the same rationale as claims

53,55,56 and 72-74, since they recite substantially identical subject matter.

11.   With regard to claims 101 and 102, Salkewicz further discloses indicating which

operations from the instruction set of the virtual machine are to be used in carrying out

the first and second instructions (programs executed by the virtual machine to

implement its policies necessarily indicate which instructions to use)(Col 11, Lines 2-9,

28-30, 37-42).

12.   With regard to claims 103 and 104, Hawkinson discloses a method of managing

network traffic being routed through a network connection device, the network

connection device having a first set of operations, the network traffic being composed of

at least one data packet, and the method comprising:

          (b) receiving a rule program at the network connection device (table set)(Col 13,

          Lines 60-65), the rule program including at least:

                    (i) a first criterion for identifying the traffic flow to which a data packet

                    belongs (Col 4, Lines 34-36),

(ii) a second criterion for classifying a traffic flow as belonging to one of at

least first (level 1) and second traffic flow (level 2) classes (flow class is

determined) (Col 4, Lines 36-37 and Col 5, Lines 28-30),

(iii) first and second instructions for processing a data packet, the first and

second instructions being associated with the first and second flow

classes respectively (each flow class receives different Qos) (Col 5, Lines

38-39),

(d) receiving a first data packet that belongs to the first traffic flow at the network

connection device (Col 5, Lines 28-30),

(e) using the first criterion to determine that the first data packet belongs to the

first traffic flow (Col 5, Lines 28-30),

(f) using the second criterion to determine the traffic flow class to which the first

traffic flow belongs (Col 5, Lines 28-30, and

(g) processing the first data packet according to the instructions associated with

the flow class to which the first traffic flow belongs (Col 5, Lines 30-41).

Hawkinson fails to specifically disclose instantiating a virtual machine on the

network connection device, executing the rule program containing a list of a second set

of operations to configure the network connection device, and managing steps (d)

through (g) using the virtual machine using only the operations in the second set of

operations.

Salkewicz discloses a similar system for managing network traffic using a

network connection device. Salkewicz teaches instantiating virtual machines on the

network connection device (Col 11, Lines 7-9), executing a program on the virtual

machine to configure the network connection device (Col 11, Lines 2-7, 22-30, and 37-

42), and managing traffic with the virtual machine (Col 11, Lines 22-26) using only

instructions specified in the program (the virtual machine behaves according to its

configured functionality and will not execute unsupported instructions, i.e. bridge,

switch, router, etc). Using virtual machines to manage traffic would have been an

advantageous addition to the system disclosed by Hawkinson since they provide

greater isolation between networks (Hawkinson, Col 11, Lines 34-36), can be

configured to have nearly any functionality supported by the network connection device

on which they operate (Hawkinson, Col 11, Lines 7-9), and a single network connection

device can perform traffic management for multiple networks using a plurality of

independent virtual machines.

Therefore, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to use virtual machines on the network connection device

to manage network traffic, since they may be configured for specialized operations and

can operate independently of each other, providing network isolation, even when

running on a single network connection device.

13.   Claims 57-71 and 81-95 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Hawkinson (US 6,295, 532) in view of Salkewicz (US 6,609,153) in

further view of Official Notice.

14.   With regard to claims 57, and 59-71, while Hawkinson and Salkewicz show

substantial features of the claimed invention (discussed above), including that classes

are defined using any number of various parameters (Col 10, Lines 25-34), it fails to

specifically disclose that the supplemental data comprises data concerning access

requirements, access rights, traffic conditions, data from a device registry, a work group

identifier, or physical characteristics of the network device.

The Examiner takes Official Notice that the use of supplemental data to

identify the flow of a data packet was old and well known in the art at the time the

invention was made and would have merely been a matter of personal preference of the

system administrator, depending on the parameters they wished to use to classify flows.

Hawkinson discloses that any parameters could be used to define classes, and it would

have been advantageous to use the parameters desired by the system designer to

classify flows based on the system requirements.

Therefore, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to use any known parameters to classify the flows in order

to control the QoS provided to flows based on those parameters.

15.   Claims 81 and 83-95 are rejected under the same rationale as claims 59-71,

since they recite substantially identical limitations.

16.   With regard to claims 58 and 82, Hawkinson further discloses that the first and

second instruction specify respective first and second bandwidth allocations (allocated

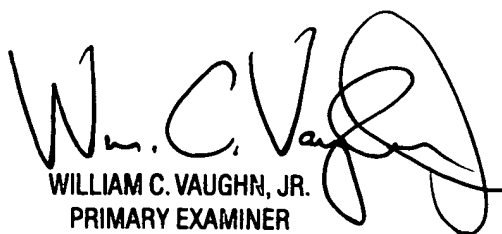bandwidth depends on flow class) (Col 19/20, Lines 27-28).

Conclusion

17.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Aaron Strange whose telephone number is 571-272-

3959. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Glen Burgess can be reached on 571-272-3949. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

AS
3/24/2006

WILLIAM C. VAUGHN, JR.
PRIMARY EXAMINER